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Rail Road News.

A Crazy Man and a Locomotive.

A remarkable freak of a maniac is noticed by the Trenton True American as having occured at Bordentown on Tuesday morning.—The locomotive which was to bring the morning train from Bordentown to Trenton was missed and the engineers procured another. When they reached Trenton they discovered the missing one fast in the switches, blowing off steam at a great rate.

"When they came to it they found a man trying to rebuild the fire, and the water and cinders splashing over him and the engine. It seems a crazy man, hailing from New-Hope, Pa., had come to Bordentown on Monday evening, and returned in the same train.—Some time during the night, or early in the morning, this madman had gone to the engine, kindled a fire, put on one of the pumps which had been taken off, and not finding the oil, had melted tallow, with which he greased all the apparatus, and, putting on the steam, came up to this city like "a streak of greased lightning." The engine had been managed very well, as it was not at all injured; but it is supposed he did not know how to back it when he got in the switches here, which were locked. We understand he must have passed one or two switches before reaching this station. He said he took the engine to see how fast it could be made to go. He was taken back to Bordentown, and sent thence to his friends. His escape from destruction was very lucky for him."

East Tennessee and Georgia Railroad.

We had the pleasure yesterday of a few minute's conversation with the Agent for the State of Tennessee, Dr. J. M. Ramsay, who passed through Charleston on his way North, for the purpose of purchasing the iron and equipments for the Tennessee and Georgia Railroad. We learn from the Doctor that forty miles of the road, extending from Dalton to Calhoun, on the Hiwassee River, are nearly ready for the iron, and it is confidently expected that the cars will be in motion on or before the first of January next. Within the year 1851, the rails will be laid on forty miles more, which are already graded and prepared for the timbers. This brings it up to the Tennessee River.—[Charleston Mercury.

The New Jersey Railroad.

It is well known that the railroads in New Jersey pay a tax to the State for through passengers from other States. The amount of duty is 8 per cent. The fare on this road from New York to Philadelphia was reduced at the commencement of this year from $4 to $3, and since that time the number of passengers have increased one fourth. The transit duties paid by the company for the last quarter, ending June 30th, amounted to $3,269,08—being $69,32 less than for the same quarter last year; this is very favorable, considering that the fare has been reduced one-fourth.

IMPROVED ANTI-FRICTION METAL STUFFING BOX.

Figure 1.

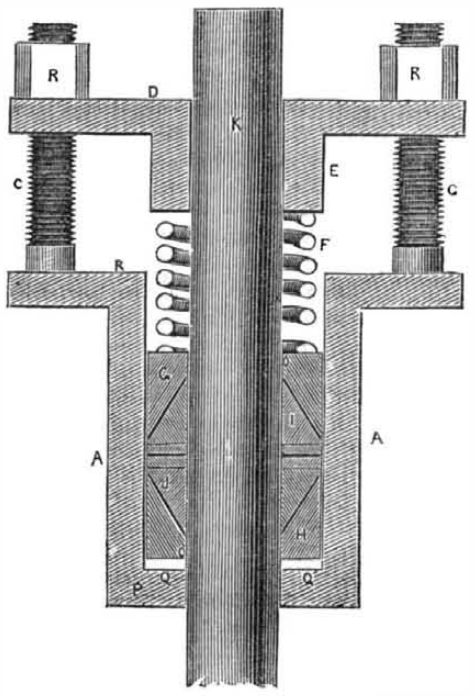
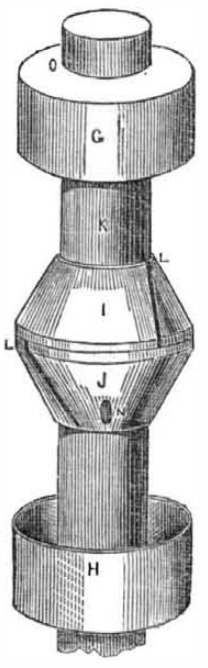


Figure 2.

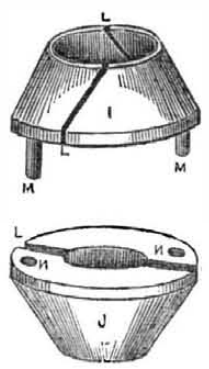


This is the invention of Mr. W. H. Shock, Engineer, U. S. N., at present residing in Philadelphia. The object of the invention is the production of a stuffing box to surround the piston of the cylinder af a steam engine, the said box being constructed to be perfectly steam-tight, with a packing of anti-friction metal, as a substitute for hemp; and is superior to it, by preserving its quality of being steam tight, although the piston rod may, from any cause, get out of line. Mr. Shock has taken measures to secure his invention by patent.

Figure 1 is a vertical section of the stuffing box, rings and spring. Fig. 2 is a perspective view of the anti-friction or soft metal packing, and the brass cups which surround the same. Figure 3 is a view of the soft metal packing—the upper and lower parts. The same letters on all the figures refer to like parts. A is the neck of the cylinder cap; K is the piston rod passing from the cylinder up through the cap and stuffing box; G and H are two brass or iron cups in the interior of the neck, A. These cups are formed exactly alike, only reversed in position; they are conically hollow inside, to receive and press around the soft metal packing, I J. The top of G is slightly rimmed out, as at O, to be a seat for the coiled spring, F. I J are sectional frustums of cones made of some good soft anti-friction metal, forming the packing or stuffing. They are solid, and made perfectly straight and true inside for the piston rod, K, to work through. On the outside they are conical, each formed of two parts, as represented by L, L. The lower one has holes, N N, fig. 3, made in its upper surface, and the upper one pins M M to fit into the said holes and couple them together, base to base, as represented in fig. 2. They are then embraced between the upper and lower cups, G and H, as shown in figure 1. The joints, L L, are what are termed broken—a solid part of one frustum being opposite to the joint of the other, thus forming a strong spring packing. Q Q is a ring of vulcanized india rubber packing at the lower part, P, of the cylinder cap; R is the ring of the cap neck, and D is another ring with a collar, E, placed above it around the piston rod. They are united together by screw bolts, C C, and drawn tight by the nuts, R R. In this manner they retain a helical spring, F, between them—the lower part of the said spring being seated within the rim, O, of the upper cup, G.

When the piston rod is moving backwards and forwards it acts upon the spring, F, to make it press upon the upper cup, G, which from its form presses around the soft metal packing, to make it always hug the piston rod perfectly steam tight. The packing being slightly elastic, owing to its being made in sections, it will accommodate itself to hug the piston rod, although it (the piston rod) may be working considerably out of parallel. Although no coiled spring was used, but merely

Fig. 3.



a fixed ring placed on the top of the cup G, it would work nearly, if not quite as well, for the action of the piston-rod upon the packing, will always have a tendency to make it hug the rod and make it work steam tight. The manner by which the packing and the cups act upon one another, as the piston rod is moving backwards and forwards, will be fully understood by observing figure 1 attentively. It will also be understood that the piston rod is broken off above the connection with the piston in the cylinder.

More information may be obtained by those who desire it, by communicating (post-paid) with the inventor, Mr. Shock, of the U. S. Steam Ship Savannah.

A Scotch paper tells a good story of an ornithological execution which the editor says he saw. A rook, who had broken some statute of the community to which he belonged, was seized by his brother rooks and conveyed to a tree, where his neck was thrust into the crotch of a small limb, and several rooks suspending themselves to his feet, he was thus summarily executed.

Useful Receipts.

For Vegetarians.

Moulded Rice.—8 oz. of rice; and 3¼ pints of milk. Wash the rice, pour the milk upon it, and boil it slowly, in a brown basin (covered,) in the oven till it becomes tender and the milk absorbed; then put it into a mould, and cover it with a plate. Turn it out, (either warm or cold,) and serve it with preserves and cream.

Moulded Sago.—4 oz. of sago, and 1 quart of milk. Wash the sago and swell it thoroughly in the milk, pour it into a mould and let it stand for 12 hours; serve it with preserves and cream.

Blanc-Mange.—One oz. of tapioca isinglass; 1 and a half pints of new milk; half a pint of cream, and 2 drops of almond flavour. Boil the milk and cream, and put in the isinglass, sweetening with sugar; boil this for 2 minutes, strain, whilst hot, through book muslin, adding the almond flavour when the milk is nearly cold, and pouring the whole into a mould, in which it should stand from 12 to 24 hours.

Brown Sauce.—5 oz. of Butter; and one oz. of flour. Melt the butter in a frying-pan or saucepan, add the flour, stirring it till it is of a brown colour; and then adding as much boiling water to it, as will make it the thickness of thin cream; season with pepper and salt.

Macoaroni and Cheese.—2 oz. of macaroni; 6 oz. of cheese; ¼ pint of thin cream.—Swell the macaroni, (previously broken in pieces about 1½ in. long,) for 1½ hours, then drain off the water and place on flat dish; add a little mustard; Cayenne pepper and the chesse cut in thin slices, with the cream, and bake in the oven till the cheese is melted.

Onion and Cheese.—2 oz. of onion; ½ lb. of cheese. Slice the onion very thin; place it on a dish with a little water and half cook it in the oven; add the cheese, sliced thin, on the top; toast altogether in the oven about 10 minutes, till the cheese is melted. Serve on the dish on which it was baked.

Maccaroni Omelet.—4½ oz. of maccaroni; 3 oz. of bread-crumbs; 6 eggs, 4½ table-spoonsful of sage, and 1 oz. of parsley. Boil the maccaroni till tender, and drain the water from it; rub the flour smooth in 3 table-spoonfuls of cold water; boil the milk, and pour it upon the flour, stirring it till it becomes thickened, and then add the maccaroni, the herbs chopped small, the eggs well beaten, and season with pepper and salt. Bake the whole in a hot buttered dish, in a moderately heated oven, until nicely browned. Serve it turned out of the dish, (after standing ten minutes,) with brown sauce and mint sauce.

Buttered Eggs.—7 eggs; ½ oz. of butter; and 1 oz., (2 table-spoonfuls,) of milk. Beat the eggs well in a basin, add the milk, and season with pepper and salt. Melt the butter in another basin, placed in a pan of boiling water; then add the eggs, stirring them till they thicken, and then pouring them out on pieces of buttered toast placed in the bottom of a dish. The eggs should preserve their clotted bright colour, and be as thick, only, as cream.

British West India Mail Company.

A semi-monthly communication between Southampton and Chagres will be opened on the 2nd of this month. There are to be smaller vessels to take the mails from St. Thomas to Jamaica and all the West India British possessions.

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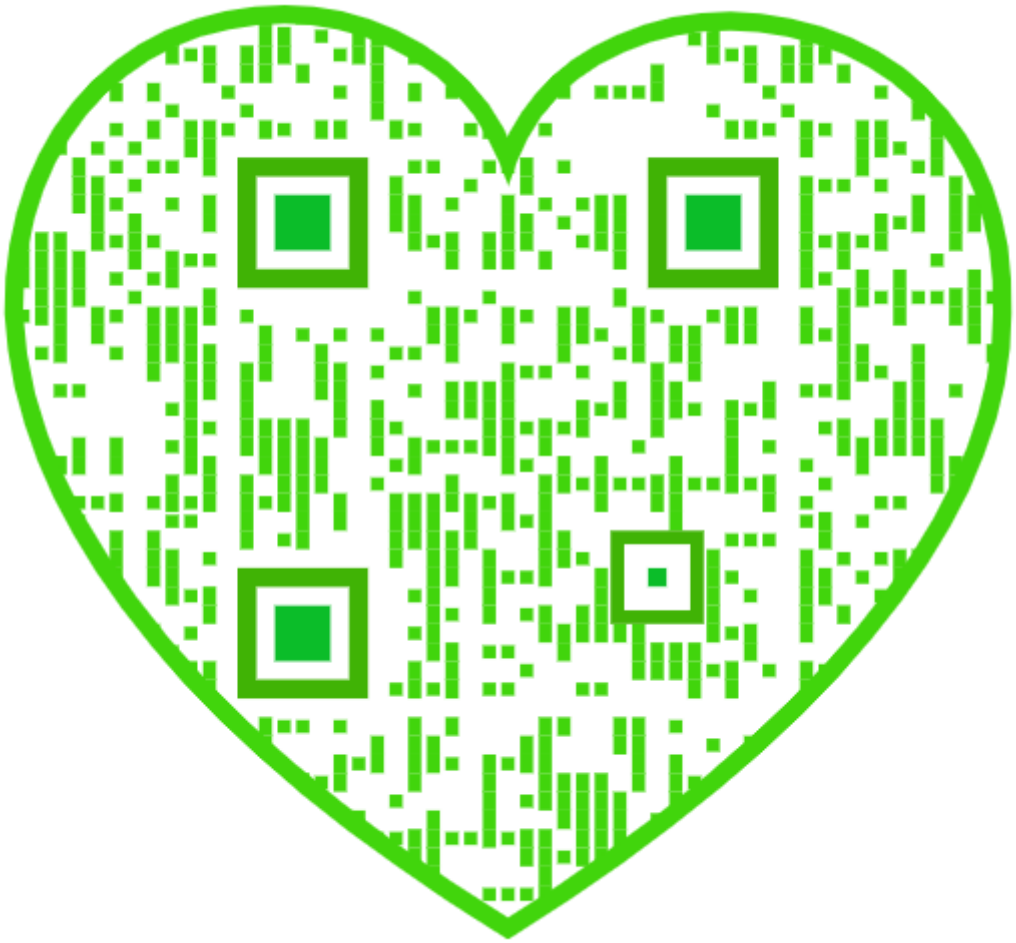

Miscellaneous.

Extensive Bakery.

We learn from the Baltimore American that Messrs. R. Mason & Brothers, whose establishment was destroyed by fire some months ago, have erected on the site occupied by their former premises, one of the most extensive and well arranged bakaries to be found in the country. The building is 60 feet square fronting on McEldery's wharf, and running through to Mill street, and three stories in height. It was erected by Messrs. R. & J. Reynolds, and is throughout built in the most substantial style, and with strict regard to the attainment of strength and durability. The machinery with which the establishment is furnished was put up by Messrs. H. & J. McCollum, of New York, and is in all its parts a model of neatness, compactness, and rapidity. Nearly the whole process of manufacture is carried on by machinery, the motive power being furnished by a steam engine of eight horse power. The flour and water are first put into a trough together, and from thence pass into a machine called the "dough mixer" in the passage through which they are thoroughly mixed together; from thence they pass to the "dough-breaker" by which the operation commonly called kneading is performed with great perfectness and astonishing rapidity. The dough having been thus prepared passes into another apartment of the establishment where it is successively passed through rollers until brought down to the required thinness; from thence it goes through the cutting machine, receiving in its passage the requisite form and stamping, the machine being so arranged as to allow of the use of different varieties of crackers, pilot, navy, and army bread, sugar biscuits, &c.—From the cutters, the dough passes to ovens, into which it is placed, by the means of long wooden paddles, with a dexterity and rapidity which is only to be acquired by long practice, and which cannot be witnessed for the first time without surprise.

We are pleased to notice the compliment paid to Messrs. McCollum of this city. They manufacture biscuit machinery of the first order at their establishment, No. 40 Eldridge st.

American Factories in Ireland.

A correspondent of the London Morning Post makes the announcement that "American cotton growers are about to establish factories in the west of Ireland." He says:

"The American manufacturers have long felt that whilst wages were so high in America they struggled in vain against British manufacturers; labor of all sorts being fully fifty per cent. higher in America than in England. The Southern slave-owners, exerting themselves in Congress in favor of their British allies, have prevented that protective duty being laid on that would make up for this heavy item of expense in manufacture, and place them on an equality with foreigners. Hence, the manufactures languish, or exist only successfully where slave-labor is applied. They perceive that it will be in future as cheap to transport cotton to Galway, Limerick, or Sligo, as to carry it to New York, Boston, or Philadelphia; whilst the labor required to manufacture it in the West of Ireland will be nearly forty per cent. less than at Manchester, and the vast water power existing everywhere will enable them to dispose with the costly steam-power British manufacture depends upon.—The amount of water power in the West of Ireland is prodigious. Alexander Nimmo, an eminent Scotch engineer, calculated that the water power which flowed idly to the sea at Galway would suffice to turn all the machinery of Glasgow; and there is little doubt that the Corrib and its tributaries possess a power, now useless, equal to all the steam-power of Lancashire. Influenced by these considerations, the American manufacturers have determined to contend on Irish soil with Manchester for the possession of the British markets all over the globe; and with their intelligence enterprise, and capital, and with the free action the present British tariff and navigation laws afford them, there is little doubt, in so favorable a locality as the West of Ireland, they will do so with eminent success."

[This is we believe to be all a fal de ral.—No capitalists could compete with the British in Ireland. It would be absurd to do so.—Great water power and cheap labor cannot make a manufacturing country without energy and enterprise. These qualities are wanting in Ireland, except at the North among the Scotch-Irish.

Scientific Memoranda.

The relative value of hard and soft water, is as three to two in favor of the latter. In washing, if it would cost eight shillings to wash with soft water, it would cost twelve shillings to use hard water, that is, in using common soap.

A metre is a French measure for 3,281 English feet.

Homer mentions brass money as existing 1184 B. C. The invention of it is inscribed to the Lydians. Money was used in Rome 578 B. C. Iron money was used in Sparta and tin money was used in Britain when under the Romans.

Every mass of alloyed gold is supposed to be divided into 24 parts; therefore when we say 20 carats fine, we know there are 4 parts of alloy in it. The English standard of gold for watch cases is 18 carats of fine gold and 6 of copper or silver.

A lunar day is 24 hours and 48 minutes; a sidereal day is 3 minutes 56 seconds less than the solar day.

A circle contains 360 degrees, a degree 60 minutes, a minute 60 seconds. A right angle contains 90 degrees. In France the circle is decimally divided into 400 degrees, a degree 100 minutes, and a minute 100 seconds.

A circle is 3 1-7 times its diameter, or more accurately 3,1416 times. Multiply the diameter of a circle by 3 1-7, and the result is nearly its circumference. As 7 is to 22, so is the diameter to the circumference—is a good common rule.

All coals are sold by weight in London; no measure is allowed. This is the same as in the United States.

Bread in London is sold by the pound, and bakers are prohibited from selling in any other way.

The cylindric foot (that is, a cylinder 1 foot long and 1 foot in diameter) contains 1357·17 cubic inches.

A ball one foot in diameter contains 904·78 cubic inches.

There are 640 acres in one square mile, and there are 43,560 square feet in one acre.

The facial angle is formed by a line drawn parallel to the bottom of the nose, with another drawn from the level of the upper jaw to the ridge of the frontal bone. In the European it is from 75 to 85°, in the negro 70°.

The circulating blood of an ordinary man is 28 pounds; the brain weighs 3½ lbs. The skeleton weighs about 14 lbs.

The Industrial Exhibition in London.

A Paris correspondent of the *Courrier des Etats Unis* states that the senate of the free town of Frankfort-on-the Maine, having published a notice that a space of 60,000 square feet was assigned to the productions of the German Zollverein at the industrial exhibition to take place in London in 1851, the tradesman of Frankfort met on the 15th ult., to inquire whether it would be expedient to avail themselves of the offer. The result of their deliberation was that they ought to refuse to send to the exhibition specimens of their industry. This is said to be the only instance of similar resolution in Europe.

The Tamaqua (Pa.) Legion says that the Little Schuylkill Company's Mine, in Sharp Mountain, worked by Wm. Donaldson, caught fire on Tuesday last, in the following manner: it appears that Mr. D. had a fire kindled in the mine, for the purpose of driving the foul air out through the airshaft; the fire coming in contact with the wood work, entirely destroyed it. This accident will suspend operations for a short time.

New Spiritual Knockings.

We notice by the London Times of June 28th that a young lady who bears the name of Mademoiselle Vandermeersch, has succeeded in training birds to such a high degree of docility, as to attract great attention among the higher circles. A long case containing 200 cards, variously inscribed, and with the edges upwards, is placed before an elegant cage in which there are four birds, who, successively hopping out of their abode, answer by means of the cards almost any question that may be proposed. Thus, if a word be named by one of the spectators the birds will take out the letters which compose it. If a watch be held in front of the cage they will take cards indicating the hour. Still more curious is a feat with a hat, into which any one of the company throws a die without revealing the number to the lady-exhibitor. In spite of his secrecy, one of the birds declares the amount of his throw. This is probably the most extraordinary exhibition of the kind ever seen, for whatever understanding may exist between Mademoiselle Vandermeersch and her birds, the very establishment of such understanding is in itself a marvel of training. The appearance and manner of the lady, who is very young, and who rules her feathered subjects like an elegant enchantress, give an additional charm to the entertainment, which is conducted with a great deal of taste. Occasionally a private performance takes place at the lady's residence, at No. 2, Baker-street, but her general practice is to visit the houses of her patrons.

This beats the Rochester Knockings all hollow.

Ship Timber from Wisconsin.

Large quantities of ship timber, consisting of oak-knees, plank, &c., now lie in our shipyards, and being worked up into elegant ships, after having performed a journey of eight to ten hundred miles, from the forests of Michigan and Wisconsin. Within a few days past, Wm. H. Webb has received fifteen hundred ship-knees from Michigan, via Buffalo and the canal, and another large lot is on the way from Wisconsin, for Messrs. Perrine, Patterson, and Stack. Enoch Hunt, of Ohio city, is the mover in this enterprise and is reaping the reward of sagacity. A railroad having been built from Monroe, Michigan, at the western extremity of Lake Erie, into the interior of that State, he distributes through the adjacent country circulars describing the size and quality of the sticks desired, and they are soon forthcoming, and commence their long journey toward the rising sun. The woodmen engaged in the business of preparing this timber, are just beginning to know what is wanted of them and the timber produced is of an excellent quality.

Wheat in the West.

There can hardly be a doubt, any longer, that the wheat crop of the West, for the present year, will be the largest ever raised.—Within the last ten days we have received statements from all the States of this section of the Union, and while none of them speak of less than an average yield in locality, many say the crop in particular districts will be above average size. And not only is the crop a large one; it is also a very good one. The grain is spoken of universally as round, plump and heavy. In one or two localities, a little rust has been spoken of, but it appeared late and was confined to the straw, and nowhere have we seen any mention made of sick wheat.

Limestone Water and Cholera.

The opinion is becoming quite prevalent that limestone water is unhealthy during the raging of the cholera. It is said that in Natchez, where cistern water alone is used, the cholera has never prevailed.

[The above is from an exchange, and we must say that there is no evidence of water flowing over a limestone formation, being any more favorable to attacks of cholera, than rain water; Louisville, Ky., is on a limestone formation and it was very healthy last year.—In some places in the East Indies where there is no other but rain water to drink, the inhabitants often suffer dreadfully from Cholera.

Singular Escape of two Females from Shipwreck.

On the occasion of the loss of the Orion between Liverpool and Glasgow, Scotland, a lady, upwards of sixty years of age, saved herself without assistance by means of a plank, or some other support. She had on her person 600 sovereigns. She gained the land with her property in perfect safety.

A young lady named Farquharson of Paisley, fell overboard when the vessel lurched and having heard that if she was thrown on the water, and would lie perfectly still and simply move her hands, she would be sustained; she did so, lying on her back and floated safely until she was picked up by a boat from shore.

Amusing Incident.

A venerable white horse, the property of a member of Gen. Sandford's staff, who has often been called into the militia service, but has never smelt the powder of a real battle field, was employed to represent 'Old Whitey' in the funeral procession in this city last week. The mistake seems however, to have very generally prevailed of thinking that he was the veritable Whitey, and his stable was visited during the day and evening previous by hundreds who were anxious to get a glimpse of the renowned war-steed or obtain a lock of his hair. On the whole however, although it was amusing to see the veneration paid to the old horse, as it was reported "Gen. Scott had brought him from Washington," nevertheless the trick had some meanness in it, considering the occasion.

Socialism.

A French paper says: "in England, where there are no professors of Socialism, and no persons who demand a forced association, there exists fourteen thousand societies for mutual assistance, possessing an annual revenue of seventy million francs, and an accumulated capital of one hundred and sixty millions francs. In France, where Socialism has its doctors, its apostles, its journals and its tribue, there are about thirty associations of cooks not very united, and possessing only borrowed sauce-pans and numerous debts."

English Wool League.

Three hundred noblemen and *gentlemen* of England have formed themselves into a Farmers Wool and Flax Association. They had a great meeting lately at Reading, England, at which the Marquis of Downshire was chairman. He declared that this was a war of the farmers against the Manchester cotton manufacturers, and he commanded them all to abstain from dealing in a single ounce of blood-stained cotton goods. All the speakers used the most red hot protectionist arguments against the cotton manufacturers. A war between the manufacturing and agricultural classes has now begun in England.

Yankee Shoes.

To give some idea of the extent to which the manufacture of shoes is carried on in some towns in New England, it is only necessary to show the operations of one village. For the year ending the first of April last, it was estimated that the whole number manufactured in Farmington, N. H., exceeded 425,000, valued at $300,000. The amount paid for labor, freight, and trucking, was near $90,000. The boxes alone cost 3,000 and required 210,000 feet of boards to make them. There are now six large manufactories besides some smaller ones, altogether capable of turning out 600,000 pairs per annum, should the wants of trade require, and the prospects warrant it.

Gas Light in Savannah.

The City of Savannah is now lighted with gas. The papers speak in glowing terms of the admirably constructed works, which are not only of a substantial character, but built in so beautiful a style of architecture as to form an ornament to the the city as it is approched from the East. Messrs. W. Bucknell, Jr & Co., of Philadelphia, were the builders.

Madame Pasta, now sixty years of age, has consented to sing at a concert in London, on the 10th inst., given in aid of the Italian exiles. The "event" is exciting a great sensation in metropolitan musical circles.

The poor in the workhouses in Ireland are in a most miserable state.

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For the Scientific American.

Review of the Rise, Progress, and Present Importance of Cotton Manufactures of the U. S., together with Statistics, showing the Comparative and Relative remuneration of English and American Operatives.

BY THOMAS H. DODGE.

(Continued from page355.)

Owing to causes growing out of a change of national policy affecting most injuriously the interests and prospects of manufactures, many miles have been compelled to suspend operations in full or in part during the above period, [see last number] while other mills which were begun under favorable prospects, and which could not be abandoned in an unfinished state without great depreciation and loss, have been pushed on to completion in hope of better times, whilst the machinery in mills built was idle and inactive in consequence of foreign competition and importation. And here I would take occasion to refer to an objection or argument that is often and vehemently urged against manufactures at times of great depression, in consequeuce of foreign importations. The objectors say it is a manufactured panic, done to deceive, and that to this end mills are being stopped while the business is in a healthy and prosperous state; and in proof of this they cite the fact that new mills are being built all over the country, which would not be the case if the business was as unprofitable as manufacturers represent it to be. This argument, so often urged, has had and does have a very strong tendency to prejudice the minds of those unacquainted with the true cause, against the sincerity of manufacturers' statements; and to this point I would invite particular attention. Now, then, why is it that new mills are often built and started in times, when manufacturers complain of great depression of business, in consequence of foreign importations? I answer that in five-sixths of instances it will be found that contracts had been entered into by the companies for the building of their mills, wheels, engines, machinery, &c., all of which must be paid for per contract, and which the contractors find very much to their advantage to insist upon being fulfilled, inasmuch as they can take advantage of the depression of business to get their labor and stock at a reduced price, while companies are compelled by their contract to pay them the same as if no depression had taken place. Here then we come at the truth. These mills about which so much ado is often made are built from necessity; and the companies are actually compelled to go forward into a dark and uncertain future, not from choice, but from a stern necessity from which they cannot escape, annul or make void.—Now I put the question to all, if it is not unkind, ungenerous, and unjust, for any one to try to turn the necessity of these companies into an implement of death and destruction? Who would not cry out against such a course in private and social life? and does it alter the nature of the act because it aims at the ruin of hundreds instead of one? Let the heart guided by conscience answer. It is a cause of congratulation, however, that manufacturers have made such progress in view of the obstacles which they had to combat and encounter. I now invite your attention to some of the practical advantages of manufactures, as seen in the actual employment and remuneration which they give to thousands of mechanics artisans, and operatives.

A TABLE showing the number of Operatives employed by the principal cotton manufacturing establishments in the United States, together with the annual and aggregate amount of wages paid the same from 1838 to 1848, inclusive.

Years.	Males.	Females	Wages of Females	Wages of Males.	Aggregate.
1838	14,000	47,000	9,287,200	4,368,000	13,655,200
1839	15,000	50,000	9,880,000	4,680,000	14,560,000
1840	15 500	52,000	10,275,200	4,836,000	15,111,200
1841	13,800	46,000	9,089,600	4,305,000	13,395,200
1842	16,500	55.000	10,868,000	5,148,000	16,016,000
1843	17,000	59,000	11,658,400	4,304,000	16,962,400
1844	20,000	66,000	13,041,600	6,240,000	19,281,600
1845	22,000	72,000	11,227.200	6,864.000	21,091,200
1846	23,000	75,000	14,820,000	7,176,000	21,996,0 0
1847	25,000	85,000	16.796,000	7,800,000	24,596,000
1848	27,000	95,000	18,772,000	8,424,000	27,196,000

Total aggregate of Males employed in 11 years, 208,800; Females, 702,000. Total aggregate wages paid to females for 11 years, $138,715,200; males, $65,145,600. Total, $203,860,800.

Average No. of males employed per year, for 11 years, 18,982; females, 63,818. Average aggregate paid females per year for 11 years, $12,610,472; males' $5,922,327. Total, $18,532,800.

After an examination of the above table, will any one doubt respecting the untold advantages that must necessarily result to this country by extending to cotton manufactures proper encouragement and protection? And will any one from abroad ask why it is that the American operative is better educated, better clothed, and better supplied with all the necessaries and comforts of life, than the middling classes of Europe? Does not the millions on millions which the American laborer receives over and above what the European operative receives go far, very far towards solving the problem? And yet it will be remembered that $1, per day for males, and $3.80 per week for females, including board, is a very small, low estimate of all the labor employed in the cotton mills of this country. An estimate of $4.25 per week, including board, for all the female labor employed in the cotton mills of this country, would have been a nearer approximation to the average price. But I have chosen a low estimation to avoid all charge of exaggeration, but I will state, for the information of those who may be laboring under the false impression that the American operative is poorly paid, that it is no uncommon occurence for the best female operative to make, without undue exertion, from $4, to $6, and $5, to $7, per week including board. And since it is often asserted that the American operative has to work for lower wages than the English operative, I have thought that the best mode of refuting the charge would be to give a table showing the difference between the two, and to it I invite the careful attention of the political economist of America. From ample and reliable information respecting English prices, 30 cts. per day for males, and $1 30 per week for females including board, is a very high and liberal estimate for all the labor employed in the cotton mills of England, while the poor noviciate, or new hand, must learn before she can get any employment that will pay more than 15c. a week including board, while the learner in American mills average $3, including board. And if any one will take pains to inquire into the condition of the English operative, they will learn something respecting their moral condition, that will make their blood curdle and chill, almost, in their veins. Think of a poor operative compelled to clothe and board herself upon this miserable pittance of from 2 to 3 cts. per day. Is it strange that she should, in an hour of despair, be shorn of her virtue, when pursued under such circumstances, by an arch procuress from one of the dens of moral pollution, where lurks in the disguise of friendship, the betrayer of female virtue. Without friends, without food, without clothes, without employment, maddened by the delirium of starvation, she hands herself over to the awful doom of the operative of the old world, until death kindly joins her to the parent dust. Lest some should think that I have drawn too fearful a picture of the condition of the English laborer and operative, I will give an official statement from one of England's most honered men. It is as follows:—"The annual poor rates of the kingdom of Great Britian are $41,000,000; and since 1816 the people of England have paid $1,000,000,000 for the relief of the poor; one in every six receiving aid," but not to sustain life, but rather to aid and prolong the death struggle, might in truth be added.

[Remainder next week.]

Value of Diamonds.

Diamonds are valued by multiplying the square of their weight by the value of each carat. Allowing a rough diamond to weigh 4 carats, and the value of each carat is $8, then $4\times4=16\times8=128$ dollars, the value of a rough diamond. Manufactured or cut diamonds, have their values found by doubling the weight—for example, a cut diamond of 2 carats, double the 2, thus $4\times4=16$, multiply as before $16\times8=128$, the value of a cut diamond 2 carats fine. Diamonds are weighed by the carat of 3¼ grains Troy weight.

Brass.

The present English method is by melting together copper in round masses, or in bars, with calamine, which is a native oxide or ore of zinc, a native carburet of zinc after combining with oxide of iron, which make it of reddish color, and it usually contains more or less lead. The calamine is powdered and separated by washing, then heated on the hearth of a reverberatory furnace, which expels the volatile matter, usually water and carbonic acid. The remainder is oxide of zinc, and a small portion carbon, which the heat cannot wholly remove, and some earthy substances. The proportions are nearly equal weights of copper and calamine and one-tenth of their weight of pulverized charcoal, which are together put into a crucible capable of containing 100 pounds of brass when completed, but when charged, holding 663, calamine 93, and charcoal 13, which is covered with clay, sand, etc., to keep it free from the air. The fire is continued from twelve to twenty hours, when the refuse is poured off, the refuse metal cast into ingots, then usually remelted and cast, to render it better and finer, when itis rolled, drawn, or made into castings for use.

Brass is often made by melting together small pieces of cast copper and zinc, which is made into ingots, then rolled into sheets slitted and drawn into wire. For knife scales, sheet brass is used which is not annealed, but stiff and hard. Corinthian brass, famous in antiquity, was an alloy of gold, silver and copper. Lucius Numminus, 146 years before Christ, captured and burned the city of Corinth, and the violence of the conflagration formed, from the abundance of metals in its course, a solid sea of this alloy in the streets and low places. German chemists make copper of a gold color, by exposing it to the fumes of zinc. The comparative stiffness of this alloy permits it to be cut by saws and files, turned and worked much easier than iron. The metal anciently called brass is the copper of modern times, and the Colossus at Rhodes, and other so-called brazen fabrics, were formed entirely of the last named metal.

[Brass making was introduced into England in 1694, where it proved a failure to its first manufacturers, but it is now a great business in that country, Brass must be annealed after it is cast into moulds or it will be so brittle that it cannot be drawn. Brass is lighter than pure copper, but it is harder. It is only malleable while cold. If brass is heated beyond a cherry red, the zinc separates from the copper in the form of gas. There are a great variety of brass alloys. Four parts of copper and two of zinc makes a beautiful brass. The copper must be first melted then the brass is introduced and as soon as it is melted it must be stirred then run into the mould. The reason for doing this is, that zinc is volatilized at the heat of fluid copper, therefore, if the zinc and copper were introduced together, before the copper was all melted a great portion of the zinc would have departed in the state of vapor.

Planting of Tea Nuts.

Dr. Junius Smith of Greenville, S. C., in a letter to the Picayune says:—

The inquiries respecting the time and manner of planting the tea nut, and the best mode of inland transportation are so general, that one cannot fail perceiving that the total absence of experience on this subject must necessarily produce such a result.

In this country we are compelled at present to resort to foreign importation of tea nuts, and must be governed accordingly in regard to the time of planting. All nuts are slow in vegetation, and the autumn, as a general rule, is undoubtedly the most suitable time for planting, especially native nuts, when the fruit ripens at that season of the year. But we cannot receive tea nuts of last year's growth in China before spring, and therefore we must adapt our husbandry to the nature of the case.

If the nuts are planted early in the summer, they may germinate before autumn, and in that case, as the seedlings are extremely delicate and tender, and not sufficiently strong to resist excessive heat or excessive cold, they will require protection. If planted in October or November in this latitude, they will require the same winter protection. In either case a good coating of clean straw, hay, or broom sedge, covered over the bed of seedling or nuts, raised from immediate contact with the earth by crossing a few small sticks, over the coating, and then throwing over all a small quantity of light mould, sufficient to preserve the covering in its place against the violence of winds, will be sufficient protection until the warmth of spring, and the absence of frost, require its removal. In the summer, beneath the influence of a hot and parching sun, this covering is essentially the same as mulching the nuts instead of the roots of a fresh planted fruit tree. It checks evaporation from the earth, and caking of the soil after watering.—I have tea nuts now in the ground, planted last October, just ready only waiting a warmer and more genial atmosphere to burst into sprouts.

In planting, a kind rich soil of a sand mould, surface and a friable, clayey subsoil should be chosen for a nursery. The soil should be spaded two feet deep, because the tap root of a seedling tea plant runs down like a carrot, and collateral radicals shoot out at a later period. When the seed bed is well dug and raked clean and smooth, the nut should be planted about three inches deep, and two or three inches apart is quite sufficient. In droughty weather, water them with a water-pot. In the evening moderately, just enough to keep the soil moist without flooding it.

The tea plant is naturally fond of water, and for a plantation the banks of a running stream, with an aspect from southeast to southwest, is the most favorable location.

With regard to transportation, I find the mail will take a small tin box, in which the nuts are packed, containing from ten dozen to any smaller quantity, and perhaps this is the safest and most expeditious mode of inland transportation, in the absence of steamboats, railroads, and private opportunities.

The Ninevite Remains--Curious Discovery.

A London correspondent writes to the Belfast News Letter, in reference to the recent discoveries by Captain Layard, as follows:

I suppose you have seen the account of Layard's recent discovery at Nimrod. A ship has been sent out to bring home the precious relic, and antiquarians are all on the *qui vive* with the expectation of beholding the actual throne whereon the kings of Nineveh have sat. There is a curious story relating to a portion of the Nineveh remains. You may perhaps remember that Mr. Layard deplored very much the loss of two of his most valuable vases. Well! the clergyman of Gealmpton, a village in Devonshire, was reading this account with a description of the missing treasures, in the newspaper, when, all at once, it occurred to him that he knew something about them.—Ringing the bell he bid his servant bring down those "jars from the loft." He compared them with the newspaper, and they tallied in every particular. The old gentleman was perfectly astonished, as well he might be, for curious as it seemed, he could not doubt that they were the actual vasses. The mystery was soon solved. They had been presented to him a short time previously, by the captain of a vessel, lately arrived from the Mediterranean, to whom they had been sold by an Arab. Not seeing any particular beauty in them, and ignorant of their antiquarian valne, the reverend gentleman sent them to the lumber room where they lay in ignominious dust and darkness till this accident, as forunate as it was strange, rescued them from, probably, eternal oblivion. They were immediately fowarded to Mr. Layard and are now in the British Museum.

Lady Castlereagh, daughter of Earl of Roden, Grand-master of the Orangemen, and wife of the son of the Marquis of Londonderry, has joined the Roman Catholic church.—Another lady, hardly less conspicuous, Mrs. Wilberforce, sister-in-law to the Bishop of Oxford, has also became a convert to the same communion.

[Lord Castlereagh has contradicted by letter, the first statement, which had appeared in the Tablet.

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New Inventions.

Condensing Engine for Street Locomotion.

It is now more than two months since we saw in the progress of construction, at the Matteawan machine shop, a double condensing engine, for drawing the cars of the Hudson River Railroad through this city. This engine has been in operation for two weeks, and has received a fair trial to test its merits, and prove whether it can be employed as a safe and superior substitute for horses. It was constructed to make no noise and emit no smoke, by Mr. Henry Waterman, who has superintended its operations since it came down to be tested. On the outside it resembles a baggage car, all the works being inside; and to those who look upon it outwardly, ignorant of what was inside, they would be led to suppose that it was some car which had ran away and left the horses behind. It has two small cylinders of 12 inch diameter and 18 inch stroke. It condenses its steam, but can be immediately converted into a non-condensing high pressure, if required. As it is designed to run only through the city between 31st street and the depot in Chamber street, it carries a tank of water sufficient to supply injection during the trip up and down As it condenses its steam, there is no puffiing of it through the smoke pipe to startle horses on the street. It burns coke and uses a blower, no smoke, therefore is observed, and there is neither spark nor chimney seen. It works quietly without noise, and thus far has proved itself capable of drawing a train of 8 cars on a trip with the utmost ease, and with only the expense of a few bushels of fuel, costing only a few cents. To do the same thing, twelve horses have heretofore been employed at a great expense. The general opinion which we have heard expressed about it, is a favorable one. Every body who has seen it, speak of its superiority to the horses. It is less troublesome and less cumbersome in every way in the street. It is intended to deliver its warm injection water to the tender at 31st street, to supply the outgoing locomotive; in this way a considerable saving will be affected. We believe this concealed condensing engine to be a good improvement in city railway navigation, and should like to see its benefits extended. The engine has been named the "Dummy," but from the trip we made with him last week, we are inclined to believe that he is a fellow who can "speak in deeds."

Machine for Planing Short Boards for Boxes.

Mr. Daniel Warner, Jr., formerly of Springfield, Mass., but now of Richmond, Va, has invented a most excellent machine for planing short pieces of planks or boards, which will be of great benefit to cabinet makers, cigar-box makers, &c., for the planing of whitewood, cherry and other kinds of wood which come unplaned into the market. The improvement consists in employing the old Bramah disc for the planing, and a horizontal revolving table, which carries the short boards, &c., under the rovolving disc (there are two, one on each side) where it is planed so well that but a few scrapes of the hand plane finishes it afterwards for all kinds of work. The revolving table is divided into clamping sections to hold different boards, the length of which may be variable, so that a number of boards of different lengths may be revolving, to go in rough at the one side of the Bramah disc, and be taken out planed on the other side of it. Gearing may be attached to the clamps to make them open to let the planed board be taken out, then only requiring the rough to be laid in between the clamps, like self-acting jaws, thus to open and close, for holding the wood to be planed, and delivering it after it is planed. This machine occupies but a small space in a shop, and will save the most slavish part of a tradesman's labor.

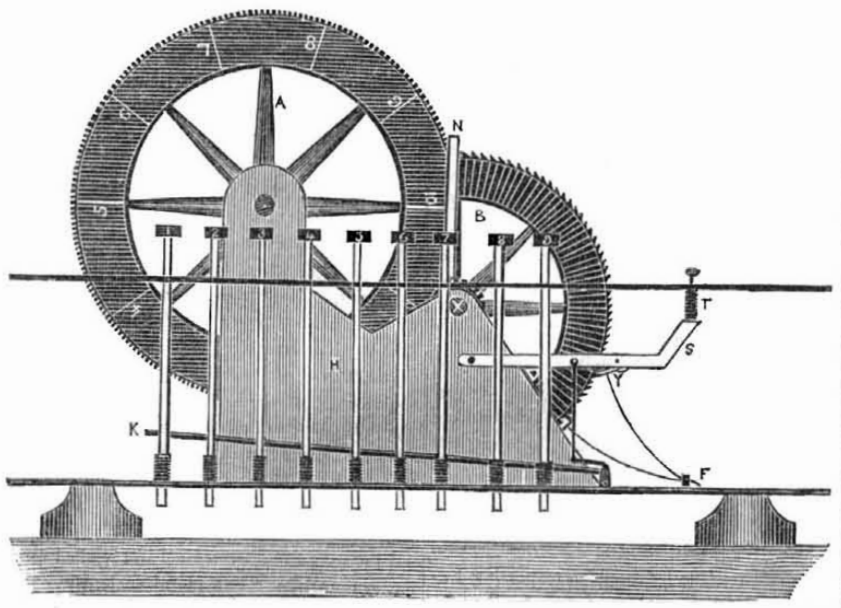
Measures have been taken to secure a patent.

A trunk of Russia iron, light, strong and neat, has just come out. It looks well being japanned, and it is perfectly air tight.

New Life Preserving Mattresses.

A series of experiments have been made in the river Clyde, Scotland, with mattresses which have been recently patented in that country by a Mr. R. W. Laurie, of Glasgow, as "Life Preservers." They are made of water-proof materials, not on the principal of air-tight tubes or cushions, which are liable to be destroyed by the smallest puncture, but on the principle of air cushions and buoyant materials combined, for although a rent or puncture should be made, the mattresses will still float. They are made of a series of tubes of vulcanized india rubber stuffed with granulated cork, to prevent them from collapsing and from external injury. The way in which the mattresses were made was to have three or four water-proof tubes filled with air and partially stuffed with small pieces of cork. These air pipes are connected together, and stuffed around the sides and over the top and bottom with layers of cotton wool, (which is almost water-proof,) and over the whole is a covering of vulcanized india rubber, gutta percha, or any water-proof material. On the sides are attached strong cords to hold on. The surface is quite smooth, and it is as easy to recline on one of them as on a hair mattress. The invention is applicable to footstools, pillows and other kinds of furniture belonging to steamboats or sailing vessels. We commend this invention to our steamboat and ship companies. Such kinds of life-preserving apparatus should be used on all sailing vessels. Captain Seely of this city has an apparatus of his own invention similar to this, which we have seen tested as a life-preserving raft, and boat, with perfect success.

PARMELEE'S COMPUTING MACHINE.



This machine is the invention of Mr. D. D. Parmelee, of this city, and was secured to him by patent during the month of last February. Its principal object is the adding up of long columns of figures. The accompanying engraving is a front elevation.

A and B are two divided and numbered scales; the first of these has ten divisions and 150 cogs working into those of a small wheel of 15 cogs, the axle of which is at X. Scale B has 100 divisions, numbered from 1 to 99–0, and the same number of ratchet teeth. Into these work a ratchet, shown at Y, which is held to its place by a small spring; H is a metal plate, which supports the scales, and on which is the fulcrum of lever S. The cyphers of the two scales having been set at the index, N, and the 9th key having been pressed, when it has carried the lever, K, far enough to bring the lever, S, with its ratchet so as to carry the small scale around to the 9th division, on which is printed 9; the scale is held here by a second ratchet, just below Y, and the spring, T, carries lever S back to the initial place. Now, if key No. 7, for instance, be pressed, the scale is carried forward 7 divisions, and consequently on the scale is seen the sum of 9+7. Thus to any extent for which the instrument may be made. The scales are reversed by pulling the knob, F, which detaches the ratchets, when a spring at the axle of scale A reverses it. It appears somewhat complicated at first sight, but it is a very simple machine and not liable to get out of order.

More information may be obtained of the inventor by letters addressed to him, post-paid.

Hollow Bricks.

We learn by our excellent cotemporary, the London Patent Journal that Mr. Henry Roberts, of Hyde Park, London, has taken out a patent for a new kind of bricks, which are so made that there will be no vertical joints in the wall which may be built of them, as are now made by the headers, where the English and Flemish *bonds* are used. The bricks are made hollow to be lighter. They are made so that one side of the brick is inclined to the top or the bottom, or the one part projecting beyond the other, so that one brick being laid the other is to be reversed, so that the projecting sides of the bricks will fit into one another, to bond the work, using only stretchers to avoid vertical joints. We do not believe that this invention will come into use. The hollow brick will be lighter and should be easier fired than the solid brick, and on that account may have advantages, but the dovetailing form will be rather a detriment than a benefit to the mason.

New Sash Brace, or Window Fastener.

Mr. L. L. Mason, of Worcester, Mass., has invented and made application for a patent for a new window fastener, which is an excellent one, as all those who have seen it admit. The stopping brace is inserted in the frame of the window, attached to a small rod, and to a spring in a peculiar notch, so that by merely pressing on the small rod, the brace relieves itself, the window can be shifted and the spring immediately throws the brace snugly into a recess in the window sill, to retain the window at various parts of its ascent and descent.—There is one good thing about this window fastener; it must always work without any trouble, and it is controlled as freely and simply as the latch of a door.

Important Philanthropic Discovery--Virtue of the Dragon Blood Plant.

We have received a singular pamphlet from Mr. L. Deschamps of France relative to discoveries made by him in the treatment of diseases, wherein it is stated that he, by accident discovered some wonderful healing properties of the Dragon's Blood, a plant of the Dock family. In 1830 he received from France several boxes of plants, and it happened accidentally that there were some dragon's blood seeds in the soil around them. The plants grew up and flourished, and happening to cut his hand, which pained him exceedingly, the thought struck him to apply this plant to it; the result was a most rapid cure. He instances numberless cures, such as burns, bruises, rheumatic affections, and one case he relates of a professional man who was cured after being paralyzed for twenty years.

The cures which have been effected by this plant, as set forth by M. Deschamps, appear to be marvellous, and we are inclined to believe that its virtues are a little too highly lauded; yet we are well aware of the good healing qualities of such plants as the plantain and what is termed *chickweed*. Both of these simple herbs have great healing properties for cuts and bruises—the virtues of the latter are not so generally known as the former.

New Mode of Lighting Street Lamps.

A gentleman named Villatte, in Paris, has proposed the following plan for lighting the street lamps, which is very ingenious, to say the least of it:—"The opening of the burner of each lamp is covered with a piece of soft iron mounted on a hinge. In connection with this is a wire extending from a galvanic battery. This wire runs the entire length of a certain service of lamps. Close to the orifice of the burner is a small slip of platina. The soft iron becoming a magnet when acted upon by the battery, it opens or closes the orifice according to the motion imparted to it. When it is necessary to light the lamps the platina is ignited by the electric fluid, and thus at once every lamp connected with the wire is ignited at once, or extinguished in the same way by the fall of the soft iron, on the orifice where the galvanic circuit is broken.

Improvements in the Steam Engine.

Every improvement which simplifies the steam engine to make it more compact, or to dispense usefully with some of its common parts, is valuable to the world, because it tends to bring into more general use, this king of prime motors. Last week we were not a little pleased to witness an improvement of this kind, in a new oscilating engine, constructed by Mr. James Wylie, Bethune street, this city. The small engine which he has in operation is of a 6 inch bore in the cylinder and 12 inch stroke. It employs no valve rod and has not a single valve about it, strictly speaking, except the *throttle valve*. The cylinder is horizontal, vibrating on trunions, and on its top is a spherical projection smoothly planed on the face, hollow, and has two openings into the steam passages leading into both ends behind the piston. The steam box has three openings, two for the exhaust and one for the steam. This box is fixed, and is concave on the underside to fit like a cap on the central spherical projection of the cylinder. When the cylinder vibrates, it opens communication with the exhaust and steam passages alternately, thus dispensing with the use of the slide valve altogether. It is a first rate improvement, as it has less parts than the common engine, and avoids all the loss by back pressure on the valves. Those who have wasted so much time in inventing substitutes for the crank, to avoid the *dead points*, will not be able to see anything but *living* points about this oscillating steam engine.

Steam Communication between England and Ireland.

It is proposed to build a huge steamboat of 12,000 tons measurement, with engines of 2,400 horse power, and for her to draw only 12 feet of water, to run between Dublin, Ireland, and Holyhead, England, to make the passage in three hours. This would be at the rate of 20 miles an hour, a common speed for our river steamboats, but it would be a wonderful speed for a steamboat running across the stormy Irish Channel. If there was a line of steamships running from Halifax to Galway, in Ireland, this would be the connecting link to England.

Lumber Business of Oswego.

In this department of trade Oswego excels, says the Times, it is believed, any other point in the United States. During the season of 1849, over fifty-three million feet of lumber were landed here, and estimates founded upon the receipts to the present time carry the imports for 1850 to 100 millions. The shipments of lumber this way have been largely extended this season, and considerable quantities are arriving here from the ports on lake Erie and Huron, as high up as Green Bay.

The celebrated Dr. Buckland, the eminent geologist, Dean of Westminster, and private friend of Sir Robert Peel, is, it is reported, bereft of his reason, and in close confinement in a lunatic asylum near Oxford.

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Advancement of the Arts--Robert Peel.

"Some men are great of themselves, others have greatness thrust upon them." Robert Peel, whose death has been recently announced in all our papers, was a man who came under both of the above definitions. He died a very wealthy man, after having won for himself the popular title of "the first British Statesman of his day."

Almost every person has been led to suppose, from the notices which have appeared about him, that he was the descendant of some haughty house—the offspring of a lordly race. But this is not so; his great wealth was acquired by the sagacity, enterprise and ingenuity of his grandfather; and the purchase of one useful invention for a very small sum. An account of this will not be uninteresting, as it will enable us to review, briefly, the progress of one art, namely, Calico Printing. During the early part of last century, calico printing was not known in England. This kind of goods derived the name from Calcutta, from which place they were taken to England.—Among the men in England who took a lively interest in her rising manufactures, was the grandfather of Robert Peel, a small but industrious farmer of Blackburn, in Lancashire. He was the inventor of the card cylinder for carding cotton, and then he taught himself to print cotton cloth—cutting his own block, making his own colors, printing the goods, and then his wife and daughters set to work and ironed them. This was a clumsy way to finish calicoes, but it was the only way known then, and there was an abundant sale for them, however coarse their finish. But the old farmer was not satisfied with this slow process, and no doubt he was a considerate man, for he set his inventive faculties to work and invented the *Mangle*, which at once relieved his wife and daughters of their severe toil, and finished his goods much quicker and far better. He afterwards got other machinery for finishing, kept it secret and produced the best finished goods then in the English market, and he was soon at the head of an extensive business and possessed of great wealth, for he was prudent and economical also. His son, the father of Sir Robert, greatly assisted him, and became a very rich man. He was also a man of great ingenuity, and is accredited as the inventor of printing calicoes with the pattern engraven on a copper revolving cylinder—impressing the pattern on the cloth which is fed in between it and another cylinder covered with a blanket. This was an improvement for great speed over the block printing, but the styles of block printing long and successfully competed with all other kinds, and only for the successive quarrels between the printers and their employers, would still be a good and extensive business. In France block printing is still carried on quite extensively. It is stated that Sir Robert Peel's father purchased the secret of making *resist paste*, from a person named Grouse, for twenty five dollars, and that he realized fifty thousand times that sum out of it. This paste is printed on white cloth, the cloth then dyed, and afterwards washed, when all those parts which have been covered with the paste, appear white—the white and blue common calico patterns.

This is the way the Peels made their money, and Robert having received a collegiate education, early took to politics, was elected a Member of Parliament, and afterwards rose to the highest office in the British Empire. To the inventive faculties of old Robert Peel, we can trace the future elevation of his *great*-grandson, and some of the richest families in England at the present day are indebted for their wealth to some invention of an humble progenitor. The Arkwright family, is one that we can mention.

It is calculated that four out of every five emigrants who leave the shores of Britain are Irish.

Large swarms of locusts have appeared in the Campagna, near Rome.

Central Committee of the United States for the Exhibition of the Industry of all Nations.

We have received through the kindness of J. C. G. Kennedy, Esq., Superintendent of Census, a pamphlet giving us all necessary information about the Great Industrial Exhibition to be held in London next year. Some time ago we stated in our columns that no American product could be exhibited there unless it was transmitted through a Governmental Central Agency, who should judge whether such article, machine, &c., was fit to represent the industry and genius of the nation. Our Government has appointed such an Agency; it consists of officers and members of the National Institute, whose names are as follows:—Millard Fillmore, Peter Force, Jas. A. Pearce, Levi Woodbury, Lewis Warrington, Joseph Henry, Walter R. Johnson, Alexander D. Bache, Charles Wilkes, William W. Seaton, Jefferson Davis, Matthew F. Maury, J. James Greenough, Charles F. Stansbury, J. J. Abert, Joseph G. Totten, Thomas Ewbank, William Easby, Leonard D. Gale, Joseph C. G. Kennedy, and Ezra C. Seaman;—they have transmitted a "Circular Letter," to the Governors of all the States to confer with Societies and individuals in their particular States, to appoint a local committee, or committees, to correspond with the Central Committee, to carry out the objects for whieh they were appointed.

What we want to know now, is where to have the models or products of American industry examined and a favorable or unfavorable verdict pronounced upon them, and certificates granted to appear in the World's Industrial Exhibition. The ports of London, Liverpool, Bristol, Hull, Newcastle, Southampton, and some others, are set down as the ports to which foreign articles must be sent. As New York is the only port where models, &c., can be directly sent by our steamers, this is certainly the only fit place for the grand operations of the Central Committee, whether superintended by some of the gentlemen mentioned above, or by others receiving authority from them. To have the grand committee here will be the means of enabling exhibitors to save a great deal of money; for it would be very unwise to have machines, &c., sent to Washington to be examined, and then to have them brought back—this would be a great useless expense and trouble. We hope to hear soon about this matter again. We can, through our columns, spread the information more rapidly and generally among those who are likely to be exhibitors than all the other papers in our country put together, and far better than by handbills, &c. The Hon. Zadock Pratt, President of the New York Mechanics Institute, should be chosen as one of a committee, at any rate. New Orleans, Savannah, Charleston, Baltimore, Philadelphia, Boston, and other seaports, should have committees in them, and the interior States have each a committee; but New York, for convenience of shipment to London, Liverpool and Southampton, is the grand place for sending off the articles to be exhibited.

Patentable Subjects.

A mere change of form is not justly regarded as the subject of a patent, neither is the simple application of an old thing to do something new. Still the question, "What amount of invention is essential to support a patent," is hedged round with some obscurity. "The thing to be patented," says Justice Story, "must be *new*—the party must have found out, created, or constructed some art, machine, &c., or improvement on some art or machine which had not been previously known by any other person. It makes no matter whether the thing be complicated or simple, whether the result of laborious study, or by an instantaneous flash of the mind, the law looks to the fact, not the process by which it was accomplished. The first question to be asked, in cases of this nature is whether the thing has been done before. In the case of a machine, whether it has been substantially constructed before; or an improvement, whether it is a new combination and has ever been applied to *such* a machine before. If it is *new*, if it is *useful*, if it has not been *known* or used before, it constitutes an invention within the very terms of the act, and within the very sense and intendment of the legislature. I am utterly at a loss to give any other interpretation to the act." These are the words of a great jurist on this subject, and they are clear as a sunbeam, yet after all he leaves room for the discussion of a very important point, viz., "whether it is substantially a new combination," or only a colorable evasion.

The mere substitution of one metal for another in a particular manufacture, if the new article is better, more useful or cheaper than the old, is patentable. The making of the first earthen teapot as a substitute for a silver one, or vice versa, would be the legal subject of a patent, according to Curtis, but as Lord Abinger wittily sets it forth "it would be a very extraordinary thing to say, that "because all mankind have been accustomed to eat soup with a spoon, a man could take out a patent because he says, You might eat peas with a spoon."

Judge Buller resolves the whole subject into the following dictum. "If there be any thing material and new which is an *improvement* of the trade, that will be sufficient to support a patent." JUNIUS REDIVIVUS.

The Cause of the Explosion at Philadelphia.

The Coroner's Jury have given this subject a most thorough investigation, and the evidence is very interesting in a scientific point of view, as bearing upon a disputed point, viz., "Will Saltpetre Explode?" Men of science have given in their uniform testimony that it would not; Paul Beck Goddard, M. D., (chemist), said it would not, but that the materials of which powder was composed—sulphur, saltpetre and carbon—would cause an explosion, if they were not mixed before. The explosion might have taken place in that building without gunpowder. Dr. Franklin Bache believed that saltpetre would not explode of itself; other materials beside gunpowder could have produced the explosion. Prof. J. B. Rodgers affirmed that saltpetre of itself would not explode, but when heated it gives off gases, which, under some circumstances, would produce an explosion. The quantity of gas which it yields is very considerable; one pound of pure saltpetre, when decomposed, at a very high temperature, yields about ten gallons of pure oxygen gas; if then a pound of saltpetre is placed in a strong vessel, having less capacity than ten gallons of gas, and this vessel intensely heated the saltpetre undergoing decomposition would acquire elastic force enough to burst the vessel with explosive force, producing the same effect as steam from water. The witness gave his opinion very fully upon this subject. In conclusion, the witness gave it as his opinion that from the materials which were described to have been in Brock's building, a tremendous explosion must ensue. Water thrown upon the burning saltpetre would increase the explosive force, as it would be converted into steam.

Samuel Jackson, the great pyrotechnist, gave his evidence, which, in a practical point, is exceedingly valuable. He was at the fire and saw the explosions. He believed that the *great* explosion was caused by a rapid combustion, and the whole occurrence created a doubt in his mind as to whether it was powder. His establishment had exploded several times, and the explosion in every case was very rapid. He had come to the conclusion that saltpetre and sulphur combined under the circumstances described at the store, would explode. He had often received saltpetre in powder and charred kegs.

The testimony of John Price Weatherill, (chemist) is valuable, as giving a scientific description of the method of making chrome yellow. He said that saltpetre would not explode of itself. "In our laboratory," he said, "in the manufactory of chrome yellow, we use quantities of saltpetre. Saltpetre is combined with chromate of iron, thrown into a double or reverberating furnace, having its fires on both sides of the hearth—heated not quite to redness at first; the fires are then raised to a red heat; on the first increase of the heat saltpetre melts in its own crystalization; it is kept in a high degree of heat until it is perfectly dry, which requires from six to eight hours before it is finished. We have had over 300 weight in the furnace at one time.—Saltpetre will not explode in that situation; it gives out the whole of its oxygen, oxydizes the iron of the chromate of iron, leaves the potash free to unite with the chrome, so as to form the chromate by potash—showing that a perfect decomposition by potash must take place, with a fire hot enough to produce that decomposition. During this operation in case of any carbonacious matter of any kind, coal, pieces of wood of any kind should be thrown into it, there is no explosion, but there is a deflagration; there is no noise; a very vivid flame is produced but no report. I have melted saltpetre in various ways in other manufactures. Saltpetre is used for the production of oxygen gas. I could not say whether the combination of saltpetre, sulphur and molasses in the store could cause the explosion, that can only be shown by an experiment. When my store was on fire, where there was a large quantity of saltpetre—several tons—the heat was so great that the fireman would not go in. I took the pipe of the Philadelphia Hose, of which I was a member, and went into the room and put out the fire. I had no fear whatever of an explosion. There was no more cracking than ordinarily takes place at a fire.—There was brimstone near the door, but don't no whether it was burnt to any extent. I think that saltpetre and sulphur, burning together, would produce a great heat."

The Electric Light.

MR. EDITOR—Can you inform me of the reason why Mr. Paine sends his gas through turpentine. Will hydrogen gas in passing through the spirits of turpentine absorb the carbon in the turpentine. Yours, J P.

New York, July, 1850.

[We can only answer our correspondent's last question. We are not aware of any such affinity in the carbon of turpentine as will make it unite with hydrogen gas, which may be simply passed through it. As an electric conducting medium, the oil of turpentine is a bad one, but the electric spark will be greater after passing through it in comparison to what it would be after passing through air, for the power of the electric spark is in an inverse ratio to the resistance of the conducting medium. It has been discovered by M. Masson that the intensity of the electric spark measured by means of the photometer or placing it in the circuit a layer of turpentine, was four times greater than with the same quantity of air. Its resistance to explosion will then be about sixteen times greater than that of air, upon the principle of the square. The photometer of Masson proved it to be 15·5, and we may well allow 0·5 for inaccuracy of measurement.—ED.

Water and Steam.

We are indebted to Mr. Benjamin H. C. Wright, of Rome, N. Y., for a pamphlet on this subject, which we shall notice next week.

Our thanks are due to our friends in Cannelton, Ind., for a pamphlet on the Illinois Coal Basin. We are also indebted to some friend in Charleston, S. C., for an able pamphlet on the Right of Trial by Jury and the Federal Court.

The Hartford Weekly Times alway does the honorable in giving the Scientific American credit for our List of Patents. It is one of the very few papers which does this.

Charades.

We sometimes receive these things but never publish them; They are useless and nonsensical trumpery to us—good for nothing in this world, and will be unknown in the next. My *first* and *ninth*, and so on, are signs of dementedness.

The Maryland State Agricultural Society will be held in the City of Baltimore on Wednesday, Thursday, and Friday, commencing on the 23rd of next October.

Lord Loughborough (once Mr. Wedderburn) was expelled from the Scottish bar before he practised at the English bar. This was the man who abused Franklin like a pickpocket.

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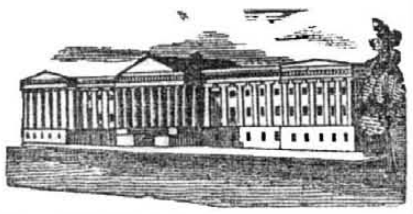

☞ Our weekly List of Patents and Designs contains every new Patent, Re-issue and Design emanating from the Department, and is prepared officially, expressly for the Scientific American, and for no other paper in the city, consequently other journals are obliged to wait the issue of the "Sci. Am." in order to profit by the expense to which we are subject, and of course must be one week behind. Those publishers who copy from this department in our columns, will, in justice to us, give proper credit for the same.

LIST OF PATENT CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending July 23, 1850.

To C. F. Brown, of Warren, R. I., for improved steering apparatus.

I claim operating or turning the rudder by means of the socket, so guided that it can be moved only in the direction of its length, and having helical threads or grooves fitting to corresponding grooves or threads on the head of the rudder post, and being moved in either direction in the line of the axis of the rudder post by means of a screw attached to and operated by the steering wheel, substantially in the manner herein described.

[See engraving in No. 38, Sci. Am.]

To F. M. Butler, of New York, N. Y., for improvement in Truss pads.

I claim the formation of the pads for trusses, braces, supporters, &c., as above described, to wit, made of shape in the boundary seen at figs. 5 and 6 (a rounded obtuse angle) and the padding made somewhat hollow and fullest on the sides as seen in figs. 1, 3 and 4, adapted to bear under and outwards of the fullness of the abdomen, making a plano-concave pad, whether single or double.

To Wm. L. Chase, of Boston, Mass., for improvement in fastening the Shoes of Hill-side Plows.

I claim the device for attaching and detaching the removeable shoe having the mould-board hinged to it, and being fastened to the land-side, substantially as herein set forth.

To Alex. Dickerson, of Newark, N. J., for improvements in the method of making wrought iron directly from the ore.

I claim de-oxidizing the ore in a chamber which is so constructed and arranged as to be heated by the waste heat and at the same time prevent the product of combustion from coming directly in contact with the ore, (except during the time of charging,) and likewise permits the charge of de-oxidized ore to descend upon the puddling floor or working bottom without exposure to the atmospheric air, the whole substantially in the manner, and by the aid of apparatus substantially such as herein described.

To J. E. Heath, of Warren, Ohio, for improvement in machines for raking and binding grain.

I claim, first, gathering the grain and compressing it into a sheaf, substantially as herein set forth, by means of the rake and standards.

Second, carrying the cord round the sheaf and holding the latter until the band is tied by means of the curved lever and toothed arms, substantially as herein described.

Third, the employment of the split thimble and sliding hook to aid in tieing the band.

Fourth, alternating the rake to gather the grain and compress the sheaf by means of the spring, strap and drum, substantially as herein set forth.

Fifth, bridging the space through which the bound sheaf drops, to support the grain while it is being gathered, substantially as herein set forth.

To A. N Henderson, of Buffalo, N. Y., for improvement in the application of Electro-chemical printing in colors for taking Ayes and Noes.

I claim, first, the mode substantially as, herein described of imprinting words, letters-figures, &c., upon paper or other fibrous sub stances, by placing the paper or other substance, either chemically prepared or not, as above set set forth, between two surfaces of a metal which is not acted on by the substances employed, on one of which the letters or figures are raised; by passing a current of galvanic electricity through the prepared material, substantially as above described.

Second, I claim passing the electric current between metallic surfaces, as above described, through damp paper, otherwise unprepared and afterwards applying a chemical solution, by which the effect of the electricity becomes visible wherever it has passed through the paper, for the purpose above described, telegraphing, &c.

DESIGNS.

To J. H. Conklin & A. W. Jones, of New York, N. Y., (Assignors to J. McGregor, Jr., of Wilton, N. Y., for design for stoves.

To J. E. Owens, Jacob Ebert & E. G. Dyer, of Hamilton, Ohio, for design for stoves.

To Amos Paul, of South New Market, N. H., for design for portable grates.

Reform of the Patent Laws.

Messrs. Editors—In your number dated July 20, there is an article on the re-issuing of patents, headed "Reform of the Patent Laws," and purporting to be an extract from a pamphlet by an unknown author. This article is founded on a wrong assumption as to what the provision of the Bill now before the Senate is, and it is feared that by having been admitted into your columns it may, from want of due attention on the part of some readers. wrongfully partake of the general and merited confidence reposed in your own opinions, and thereby, if not corrected, acquire additional strength to do mischief. You mention that the article is extracted from a pamphlet received by you and purporting to be a review of the Bill now before the Senate, for amending the Patent Laws; from this, in connection with the contents of the article, it is evident that it is intended as an opposition to that part of the Bill for amending the law and improving the practice on the re-issuing of patents. Judging from the contents of the article, and from what the provision of the Bill really is, one of two things appears certain, either that the writer of the article was entirely ignorant of the contents of that provision of the Bill, or, that having a knowledge of it, and being unable to offer any well grounded opposition to it as it stands, sought to keep others in ignorance by representing it to be what it is not, and then proceeding to raise grave objections to it as so misrepresented. Not a single thing or reason contained in that article has any relavency or application whatever to any part of the Bill now before the Senate, or to any Bill which has been before the Senate during the present Session of Congress. All that is therein said, applies only, and purports to apply only, against repealing the law for re-issuing patents. The writer has assumed that the Bill provides for a repeal of the law without a substitute, and then has spent his force on this false assumption. There is no such provision in any bill which is, or has been, before the Senate, and nothing like it, and therefore, leaving the writer of the article to exult in the glory of having demolished a thing erected by himself for that purpose, it is a sufficient answer to all he has said in his article of a column and a half, to inform the public that he has, thus far, been "barking up the wrong tree."

The provision of the Bill now before the Senate, relative to the re-issuing of letters patent, is only to modify the present law in such manner as fourteen years practical experience, under its operation, has shown to be necessary, retaining all of its beneficial parts, and improving it so as to better secure the very objects for which the late Judge Thompson first recommended it, and which are the same as advocated by the writer of the article. If any thing shall be said in opposition to what is—not what is supposed to be—the contents of the Bill, it will be answered in detail.

A Subscriber.

Commissioner of Patents.

A correspondent of the Tribune, writing from Washington, states that the removal of Mr. Ewbank has been determined upon by President Fillmore, and Dr. Lee, of the Agricultural Department is to be appointed in his place.

Woodworth Planing Machine.—Patent Decisions.

Messrs Editors.—Early last winter, what purported to be the report of a decision of the Supreme Court of the United States in the cause of Wilson against Simpson and others. delivered at the last December term by Mr. Justice Wayne, in regard to the patent for the above planing machine, appeared in the Washington Union, and was extensively republished in other papers. It stated in substance that the Supreme Court had adjudged that any assignee of a right to use the patented machine during the original term of the patent, or during the first extension, which ended on the 27th day of December, 1846, might continue to run the same machine or machines which such assignee then had in use, afterwards and during the second extension by the act of Congress, without any further payment to, or license from, the patentee or his administrator. In fact, however, no such decision has ever been made by the Supreme Court; and in the above cause of Wilson vs. Simpson and others, no such question was involved, or in any manner before the Court. The newspaper report of that case was, in this respect, wholly erroneous.

Without imputing to its author any intention to mislead, and conceding, as is probable, that the error arose from inadvertance or misunderstanding, its effect has not been the less injurious to the parties immediately interested, and to the public. It induced the holders of licenses or assignments of the right to use one or more machines during the first or second term, to insist in good faith on their supposed right to continue such use into the third term, and to set the adminstrator of the patentee, and those who held under him by grants for which they had paid large sums of money, at defiance. On the other hand those who had procured license to run these machines during the present term, for which they had paid or bound themselves to pay the usual price, were underbid and driven out of the market by those who paid nothing. The former demanded and were manifestly entitled to protection by those from whom they had received their licenses; a considerable number of suits, therefore, were unavoidably commenced, and are still pending; and the public, in many places, are served imperfectly, or not at all, with a patented machine the immense advantages of which are now universally conceded.

These, and many other mischiefs have resulted from what is believed to be a manifest mistake on the point above stated. By giving publicity to the following brief report, including the written opinion of Mr. Justice Nelson, you will confer a favor on many of your readers and the public.

Circuit Court of the the U. S. for the Northern District of New York. John Gibson vs. Henry Gifford.—This was a motion for an injunction, founded on the bill of complaint, answer, and affidavits. The complainant claimed to be the purchaser and grantee of the exclusive right to construct, use and vend the Woodworth Planing Machine, in a large portion of the State of New York, including the county of Onondaga; and alledged an infringement of this right by the defendant, in running one such machine in Syracuse, without authority. The defendant, in his answer and opposing affidavit, set up, among other defences, which are alluded to in the opinion of the court, that he held a valid license to use the same machine for the original term of the patent, and for the first extension, ending on the 27th of December last; and claiming, on that ground, the right to continue its use during the the present or congressional extension. A. Taber for the complainant; C. B. Sedgwick for the defendant.

The following written opinion was delivered by Mr. Justice Nelson on the 22d of July, instant:—

I. Several of the objections taken by the counsel for the defendant to the motion for an injunction have heretofore been before us, considered and disposed of—such as the novelty of the invention, and whether Woodworth was the first and original inventor—the surrender of the patent and re-issue with an amended specification on the 8th July, 1845, and whether the amended specification embraced a different invention or discovery from that attempted to be described in the first patent.

We have since seen no grounds for revising the conclusions at which we then arrived.—Subsequent examinations have but confirmed them.

II. The question whether the assignee under the first term of the patent, or under the second term, as extended by the Commissioner according to the 18th section of the act of 1836, is entitled to the enjoyment of a like interest under the act of February 26, 1845, entitled "An act to extend a patent heretofore granted to William Woodworth," or to continue in the use of the machine or machines, lawfully constructed under the first or second term in pursuance of an interest acquired under either, and which were existing and in use at the termintaion of the said second term, I regard as conclusively settled by the case of Wilson vs. Rosseau et al. (4 How. 646.) The decision of that case proceeds upon the ground, that had it not been for the proviso in the 18th section in favor of assignees, their rights acquired under the first term would have expired with its termination, and the exclusive right to the use and enjoyment of the invention, during the second term, become vested in the patentee. Whatever was saved to them, was saved by reason of the proviso alone. If the extension had been absolute, that is, if there had been no reservation in favor of assignees, as is the case in the act of 1845, the Court would not have entertained a doubt, but that the exclusive right to the invention would have become vested in the administrator during the second term. The whole argument in favor of the right of the assignee to continue in the use of the machines existing at the expiration of the first term rests upon the proviso and could have been maintained upon no other ground.

There is no proviso or reservation in the act of 1845, and, consequently, according to the principles of the above case, the conclusion is decisive against the claim of the assignee here.

III. As to the allegations that the act of 1845, was procured by fraud and misrepresentation, we must regard it as the law of the land governing the rights of parties, so far as it applies, as long as it is permitted to exist in the statute book. The appropriate remedy, if the supposed allegation be true, is a repeal of the statute. So far as this preliminary motion is concerned, at least, we shall regard it as conclusive evidence of the extension of the term for the period mentioned. Injunction granted.

In the cause of the same complainant against Alexander Coffin and Aaron Frost, in Circuit Court for the Southern District of New York, A. Taber for the complainant, C. Swan for the defendants, the same point was decided on the 23d instant, in regard to the use of a machine in the village of Poughkeepsie; an injunction was granted against the defendant, Frost, but denied as against the defendant, Coffin, upon his answer and affidavit, that since the 27th day of December last, he had neither run nor been in any manner concerned in running the machine.

In the cause of Bloomer against Curtius and Rinney, in the Circuit Court for the Eastern District of Louisiana, before Judges McKinley and McCaleb;—in the cause of Woodworth et al. against Barbour et al., in the Circuit Court for the District of Maine, before Judge Ware; and in the cause of Woodworth against Curtis in the Circuit Court for the District of Massachusetts, before Judge Sprague, the same point was decided and injunctions granted in each cause; and in the last above cause, a perpetual injunction was granted on the final hearing. T.

[The above is from the Albany Evening Journal of the 26th inst. We make no comments upon it. The author of it appears to understand his subject, and our rule is to hear every reasonable man "for his cause."

7,086,374 gallons of whiskey were consumed in Ireland last year.

New York never was more healthy than during the present season.

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TO CORRESPONDENTS.

"D. G., of Ind."—Your plan will no doubt accomplish all you set forth, but the two cylinders with the cranks set at right angles, have been found to answer every purpose. We must also state that one locomotive has been patented upon that principle by Robt. Stephenson, in England.

"R. M., of Ohio."—It is well that you propose to satisfy parties by actual experiments—this is the only proper course to adopt. You had better advertise for a partner in some of the local papers around you. You would be more likely to succeed by adopting this course.

"L & J., of S. C."—Yours of the 23d inst. came safe. We are having the business attended to, and shall write you as soon as possible.

"J. H. C., of Pa."—We have no No. 1 to send you, nor had at the time. Minifie's Geometrical and Mechanical Drawing Book is undoubtedly the best one in use; price $3—for sale at this office.

"B. A. & Son, of N. Y."—Mr. W. was not in the city when your letter reached us; he will be here probably in a few days.

"L. L. M., of Mass."—Your business has been attended to, and we hope to hear a favorable result.

"N. H. B., of Me."—We have been unable to find Mr. M. E. H. We presume he is an imposter and appropriated the money to his own use without intending to render you a proper equivalent. We found no such letters in the office.

"R. S. I, of R. I."—We received yours of the 27th; the pipe will be obtained if possible. Shall write you without much delay.

"W. M. S., of Geo."—Your agent, Mr. H., made a mistake, and did not enclose the draft for $70 in his letter. This will explain the cause of the delay.

"W. H., of R. I."—We cannot advise in the matter you refer to, since the parties are all unknown to us. Law in such cases gives the only redress. Your letter will be preserved for further reference.

"C. R., of Vt."—The lathe that you refer to is not self-feeding. They will probably be on exhibition at the Fair.

"J. W., of N. H."—Dr. Lardner's work upon the Steam Engine is as good as any now extant.

"L. B., of N. H."—See notice in the last paper addressed to you.

"L. H., of Pa."—We wrote you a few days since, giving our reasons why a patent could not be obtained for your improvement.

"H. C., of Texas."—You can take out a patent and not invalidate your right by letting it lay. Your valve plan, we believe, is new and patentable. It would cost at least $60 for patent fee, and the business, as the work to be done is troublesome. The first thing to be done by you, if you wish to apply for a patent, is to construct a model—a small but workable one.

"A. J., of Mich."—Pennock's Patent was granted March 12th, 1841. It is used considerably and may be considered a good machine.

"A. F., of N. H."—We do not see anything in your sketch that is patentable. The principle and operation is the same as cylinder calico printing.

"W. G. H., of Pa."—We believe your improvement is patentable, but only as an improvement.

"J. E. C., of Phi."—Your plan is not patentable, we would not advise you to spend money on it.

"O. P. S., of Ohio."—A machine like your Ship Ram has long been known. The pulley made with the plaster is new, but we do not believe it will answer well. After the application is made it will be decided in from 4 to 7 months. Your Baby Safe appears to be a good thing.

"A. W. C., of Mich."—We believe your machine to be very good, but we do not believe you could easily get a patent for it, as we do not see any new combination, except in turning the tub as the pounders are operated. This part might be patented; it would cost you $50 at least.

"J. T. S., of Me."—Yours was a little too late for this number; see the next.

"J. R. G., of Miss."—So far as our observation extends, we are of the opinion that the process alluded to in yours of the 23d inst., has failed in a practical point of view; we anticipated as much, and advise you not to meddle with it.

"C. L., of Conn."—Your idea is good, but you will perceive that the principle is covered in Mr. Bevans' bridge.

"W. D. S., of Pa."—Your Rat Trap is new and patentable, we believe. It is not possible for us to give advice about the paying part—that depends on the way the patent is managed; but we must say, as our opinion, that rat traps would be a doubtful business.

"J. S., of Ky."—We believe that your letters have all been received. We have published a great deal in relation to the subject referred to, and feel disposed to take a breathing spell over it. We think you were so informed through this medium some time since. The April letter we do not remember, and not knowing the names of the subscribers we cannot answer you on this point. You cannot embrace the two subjects in one patent, separate applications will be required, the same as in all other cases. We are glad to hear from you, and hope at the beginning of the new volume, that you can send more names.

A. C., of Mass.; F. C. A., of Ky.; J. E. L. of N. Y.; G. C., of N. Y., and others—

Have a little patience with us this hot weather and your cases shall receive proper attention. The delay which you have suffered has been unavoidable on our part, but with the increased facilities which we now possess—having greatly enlarged our Patent Office department and increased our force of Examiners—will preclude much further delay. You will hear from us soon.

Money received on account of Patent Office business, since July 24th, 1850:—

L. L., of N. Y., $100; D. W. Jr., of Mass., $30; G. H. P., of Phil., $20, and R. S. T., of N. O., $45.

We have some valuable correspondence that is unavoidably left out until next week.

☞ Persons writing to this office must sign their names to the letters, or no notice can be taken of them.

A letter from Mr. Henri Herz, the Pianist, appears in the Paris journals. He speaks of the marvellous state of society in California, of how the artificial distinctions of false society are destroyed, and adds, "I have been able to appreciate the incredible activity and spirit of enterprise of the Americans. No other nation in the world could have succeeded in making California what it has become in their hands in fifteen months." After all, the word "go ahead" is not a sound, but a fact.

The Viceroy steamship, which was wrecked on the coast of Halifax, has been got off.

It is estimated that the omnibus proprietors of this city own 500 vehicles and 5,000 horses, employ 3000 men, and annually expend $800,000.

Back Volumes Scientific American.

We are obliged to inform our patrons that complete sets of all the past Volumes are entirely exhausted. We have a few incomplete sets of Vols. 2 and 3, comprising about 50 Nos. of both Vols., which may be had by remitting one dollar, and we have sets of above 40 Nos. each of Vols. 3 and 4 which will be forwarded by mail an the receipt of one dollar for each set. Those desiring to secure Vol. 5 but have delayed subscribing at first, are advised to remit $2 without delay or they may be disappointed in getting a volume at all, should they wait until the Nos. are all published?

An Improved Straw Cutter.

We have for sale a most excellent Straw Cutter, constructed upon an entirely new and improved principle. It was left at this office by the inventor, who wished us to dispose of it for him. It is easily kept in order and executes very rapidly. Price $12, carefully boxed. Address Munn & Co.

Important Notice to us!

Whenever any of our friends order numbers they have missed—we shall always send them, if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for cannot be supplied.

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Patent Office.

128 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms. Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

Arrangements have been made with Messrs. Barlow and Payne, Patent Attornies, in London, for procuring Letters Patent in Great Britain and France, with great facility and dispatch.

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1 1-2 - -	17	10-6	- -	——
1 3-4 - -	49	10-6	- -	——
2 - -	250	10-0	- -	——
2 - -	505	12-0	- -	301
2 - -	944	14-0	- -	——
2 - -	583	15-0	- -	700
2 - -	66	6-6	- -	——
2 - -	83	4-10	- -	——
2 1-4 - -	356	15-0	- -	——
2 1-2 - -	252	15-0	- -	210
2 3-4 - -	150	15-0	- -	200
3 - -	—	15-0	- -	160
4 - -	28	15-0	- -	——
5 - 1	1	15-0	- -	——
6 - -	14	15-0	- -	——

THOS. PROSSER & SON, Patentees,
July 30, 1850. 28 Platt st., New York.

TO MACHINISTS.—The 6 feet Planing Machine offered for sale, by Faulkner & Lewis, in the four previous numbers of this paper, is now offered for the low sum of $500. The finish is unexceptionally good in every particular, is worked by three pulleys and one belt; the speed is 3·40 back to one forward; the rack is divided into fifths, which enables it to plane perfectly smooth, which can be tested before purchasing. 46 4*

APPARATUS FOR BORING CYLINders for sale—Price $500, originally cost $1000, and is as good as new.—A Vertical Boring Machine, eleven feet long, with apparatus for correctly boring iron cylinders of any size, from 8 inches to 4 feet diametor. This machine is in good order and complete, and the only reason for its being offered for sale is on the ground of the owner relinquishing business. The machinery will be properly packed and placed on shipboard for the price above specified, ($500.) Letters concerning it may be addressed (post-paid) to this office. MUNN & CO. 46 tf

TO IRON FOUNDERS AND MACHInists in the Northern and Eastern States.—The Subscriber, sole agent for the sale of rights to make and sell the celebrated Bogardus Horse Power, will contract with any one disposed to manufacture the best horse power in the world, upon reasonable terms. Address GEORGE VAIL, Morristown, N. J. 1am1y*

PROF. A. C. BARRY'S TRICOPHErous, or Medicated Compound.—Barry's Tricopherous has been subjected to an ordeal for ten years Every year its reputation and sales have increased until more of it is consumed annually than of any other preparation for the hair ever offered to the American public. Its extraordinary cheapness places it within the reach of the humblest family, and its conceded value insures it a place on the most luxurious toilet. Sold in large bottles, price 25 cts., at the principal Office 137 Broadway, New York. For sale by the principal merchants and druggists throughout the United States and Canada. Beware of the counterfeit. Sold at $1 per bottle. 45 2

JUST ISSUED—A new edition of Minifie's Mechanical Drawing Book, substantially bound in paper, which can be forwarded through the mail.—Price $3. For sale by MUNN & CO., Agents, New York. 42tf.

TO THE THINKERS OF NEW YORK. KNOX is desirous that every rational man in want of a hat, should, for a moment, think before deciding where they shall supply that want. KNOX hinkst that 128 Fulton st, is just the spot. 38 8*

12 POWER PLANING MACHINES.—SCRANTON & PARSHLEY, New Haven, Conn., have now finishing off 12 power Planers that will plane 8 feet long, 27 inches wide and 24 inches high; these planers are of the first quality, are self-feeding every way; the table is worked by a rack and pinion; the bed is 12 feet long. With each planer there is a splining head and counter shaft, pullies and hangers. Also 4 large 12 feet slide lathes with back and screw gear, centre and follow rest, drill chuck and over-head reversing pullies, weigh 2,800 lbs., swing 25 inches—$300. Also 12 hand lathes, with back gear on iron shears, and legs 7 feet long, swing 20 inches, about 700 lbs. weight—$75. These lathes are of the first quality. 45tf

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This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid). MUNN & CO., 14tf At this Office

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by QUARTERMAN & SON, 46 2* Painters and Chemists

COTTON, WOOLEN AND SILK MANU- FACTURERS' DEPOT.—ANDREWS & JESUP. No. 70 Pine st., N. Y., dealers in articles for the use of Cotton, Woolen and silk manufacturers, and agents for the sale of shearing, carding, burring, napping, wool-picking, flock-cutting and waste machines, regulators, satinet and jean warps, &c. Weavers' reeds and heddles, bobbins and spools, of every description, made to order. Sperm, lard and olive oils and oil soap. 40tf

MECHANICS' FAIR AT BOSTON—(To be held September, 1850.)—The New England Patent Agency, Haskins building, Boston, will receive patented machinery, or other articles, place the same in the above Fair, and take orders for them, or dispose of the Right, for a reasonable commission. They will also, if desired, exhibit them before or after the Fair, at their own spacious rooms. Storage free, and no expense charged except freight and cartage. Inventors should lose no time in forwarding their articles. DARIUS WELLINGTON, Agent 39 8 New England Patent Agency.

STEAM ENGINES AND BOILERS.—The undersigned has for sale one engine of 12 horse power, 1 of 6 and 1 of 5 horse power, new and of good quality; also one second-hand engine and boiler, 14 horse power, for $950, in good repair; 1 of 6 horse power, in good working order, with boiler, for $300. Steam Boilers made to order at the lowest cash prices and of the best materials; also planers, fan blowers, heaters, pumps, shafting pullies, &c., at No. 4 Howard st., New Haven, Ct. AARON KILBORN. 42 6*

WOOD'S PATENT SHINGLE MA-CHINES—These excellent machines, illustrated and described in No. 23, Vol. 5, Scientific American, are offered for sale in Town, County and State Rights, or by single machines. There are three sizes, the first cuts an 18 inch shingle, price, $100; 2nd cuts 24 inch, price $110; 3rd, 28 inch, $120. Orders addressed to J. D. Johnson, Redding Ridge, Conn., or to Munn & Co., "Sci. Am." Office, will meet prompt attention. 36 tf

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines, Dick's Presses, Punches, and Shears; Morticing and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 46tf

BURR MILL STONES.—We have made arrangements which will enable us to supply all kinds of French Burr, Holland and Esopus Mill Stones of the best material and manufacture, at the lowest prices. Burr Mill Stones made to order and warranted to be of the best quality; Burr Blocks for sale.—Orders addressed to MUNN & CO., post-paid, at this Office, will meet with prompt attention. 41tf

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WOODWORTH'S PLANING MACHINE —For sale. the right to use this justly celebrated labor-saving machine in the following States, viz. Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 304 Broadway. 45 6*

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FOR SALE.—Roaring Run No. 1 Metal, unequalled for car wheels, or work needing great strength and fluidity. Address F. B. Dean, Esq., Lynchburg, or the undersigned, at the works. S. C. ROBINSON, 45 4* Junction Store P. O., Botetourt Co., Va.

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Scientific Museum.

A Wonderful Diamond.

The most valuable diamond in the world has lately come into the possession of Queen Victoria. It was brought from the East Indies and presented to the Queen by the East India Co.; it is called the "Ko hi Noor," (Mountain of Light.) All the natives of Hindostan have heard of it, and it has had a mythological fame for a number of centuries. Its possession by any prince was superstitiously held to be the type of dominion. It was discovered in the famous diamond mines of Golconda, but when is unknown. It was a State jewel of the Delhi Emperors until 1739, in that year the Persian warrior, Nadir Shah, conquered the Delhi monarch, and carried it away as his most precious trophy the "Ko hi Noor." It afterwards came into the possession of the Meers of Affghan, and was an heir loom in the family of Ahmed Khan Abdali, and was carried to Lahore by the fugitive prince Shah Shooja, from whom it was extorted by the basest of means—starvation. This was the hospitality of the Sikhs. By the conquest of the Sikh territory, in 1848, this diamond came into possession of Lord Dalhousie, according to stipulation, to be presented to the Queen. Its value is about eight millions of dollars; it weights 280 carats, and is of the finest water. It never has been in a dealer's hands but has descended either by fraud or force, from one prince to another. Its shape is like the pointed half of a hen's egg.

Flax made to Resemble Cotton.

In the Swedish transaction for the year 1847, a method is given of preparing flax in such a manner as to resemble cotton in whiteness and softness, as well as in coherence.—For this purpese a little sea water is to be put into an iron pot or an untinned copper-kettle, and a mixture of equal parts of birch-ashes and quicklime strewed upon it; a small bundle of flax is to be opened and spread upon the surface, and covered with more of the mixture, and the stratification continued till the vessel is sufficiently filled. The whole is then to be boiled with sea-water for ten hours, fresh quntities of water being occasionly supplied in proportion to the evaporation that the matter may never become dry. The boiled flax is to be immediately washed in the sea by a little at a time, in a basket, with a smooth stick at first while hot; and when grown cold enough to be borne by the hands, it must be well rubbed, and washed with soap, laid to bleach, and turned and watered every day. Repetitions of the washing with soap expedite the bleaching, after which the flax is to be beaten and again well washed; when dry, it is to be worked and carded in the same manner as common cotton, and pressed between two boards for 48 hours. It is now fully prepared and fit for use. It loses in this process near one-half its weight, which is abundantly compensated by the improvement made in its quality.

Experiments of Shot on Iron Vessels.

Some new experiments have been made at Portsmouth England, by Capt. Shad of the R. N., on a new iron side fitted up for the purpose of testing the effects of hollow shot upon it. The iron was new and of the best quality. Two ten inch hollow shot were fired, both taking effect. When they struck they were shivered to atoms and the iron plates were scattered about in splinters. The effect of the hollow shot upon the iron vessel was more terrific than the bursting of a shell on board of her. Further experiments are to be made on an iron butt lined with wood, to try whether or not the wood will aid to prevent the iron flying off in splinters.

The imperial library of Vienna has just been enriched with an ancient manuscript in Greek on the advent of Christ, lately discovered at Constantinople. According to an indication on the last page, in the same handwriting as the body of the work, it appears to have been composed in the second century, by a Bishop, Clement, hitherto unknown. In all likehood, it is a forgery.

History of Propellers and Steam Navigation.

[Continued from page 360.]

RENNIE'S EXPERIMENTS IN PADDLE WHEELS.

The Civil Engineer and Architect's Journal, of September, 1849, contains an article from Geo. Rennie, so well known as an experienced engineer, on the subject of the form of paddles, which has been represented in the Franklin Journal. It refers to the experiments of Mr. Ewbank with marked respect, and says :—

These facts developed by his experiments may be briefly stated; they are as follows :—

1st, That, with equal areas and equal dip, triangular blades may be rendered twice as effective as ordinary rectangular ones; and this, too, while the propelling surface of the smaller number of floats was only half that of the greater.

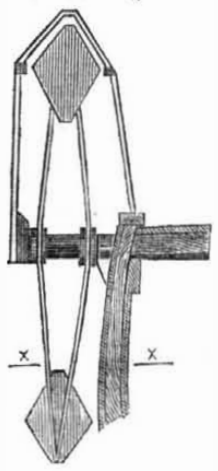
2d, That, as the propelling power of a paddle is greatest at its greater or outer extremity, and diminishes to nothing at the surface, so its face should enlarge with the dip, and be nothing above—in imitation of the tails of fishes, the wings of birds, &c.

3d, That the fewer the number of paddles on a wheel the better, provided one be always kept in full play; and,

4th, That it would be more advantageous to point or fork them as proposed, to evade the jar of their striking the surface.

FIG. 73.

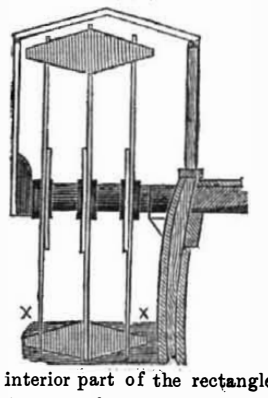
(Modifications of Ordinary System.)



In the year 1831, my attention was attracted to this subject during the investigations undertaken for the purpose of ascertaining the laws of the friction and resistance of solids in motion in fluids, such as air and water; when, on causing discs or plates of metal to rotate round a fixed axle, by means of weights descending through given spaces and times, it was found that when a certain portion (one-fourth) of a rectangular disc or fan was intercepted

FIG. 74.

(Improved Trapezium System.)



from the interior part of the rectangle, so as to approximate to the form of a duck's foot, the resistance, whether through air or water, was the same—or, in other words, the resistance with three triangular or duck-footed floats was as great as previously with four rectangular floats. This apparent paradox was, however, accounted for on the principle of the interior or detrimental portion of the rectangular flo at being removed.

Clinton Jackson, a young man, swam across the Niagara river under the Falls, and back again, without landing to take breath. The distance is half a mile, and the current, as is well known, is exceedingly strong and turbulent.

Appearances of the potato disease are evidently in the present Irish crops.

Origin of Malleable Iron and Patent Leather.

The late fire which destroyed the Malleable Iron Foundry of Condit & Bowles, has led to some interesting reminisences. On the spot where the fire occurred, was originated the manufacture of two articles which now form a portion of a most important branch of the useful productions of our country—Malleable Iron and Patent Leather. At the early period when carriage making in this place was wholly confined to three establishments, there lived one Andrew Wilson, who carried on the silver plating, and one or two other branches of business appertaining to the making of carriages, at the spot where the Washington Factory now stands. In his employ was Mr. Bowles, now one of the firm just burnt out. Among those employed by him, was Seth Boyden, now well known here as a man of extensive and varied mechanical genius, whose business was then partly to collect orders from the coach makers, then confined almost exclusively to Robert R. Campfield and David Beach. In pursuance of his peculiar business, Mr. Boyden happened on one occasion to discover a small piece of patent leather in one of the above shops, which had been imported from Europe at an expense of 62½ cts. a square foot. Its apparent stiffness, by japanning, its high degree of polish, and at the same time its great pliability, struck him as being very curious. After a thorough examination of its texture, &c., he set to work to imitate it, and found but little difficulty in discovering the japanning precess, but after that, the drying part was found to be more difficult to accomplish. On the premises above mentioned, he erected a rude shed, in which he placed a sort of an oven, and was soon after, by the aid of a journeyman, conducting a profitable business in this new branch of manufacture; the progress of which, was not only entirely unknown in this country, but even the article itself, it is said, was never seen here before, except by the carriage makers above named.

At about the same period also, there was imported a few large articles made from malleable iron, which were both new and curious, inasmuch as the material was susceptible of being readily tinned or plated; and the iron, though hard almost as steel, was not brittle, but conld be moulded into any desired shape. Mr. Boyden, with indomitable perseverance and ingenuity, determined on finding the solution of its mystery. With a small crucible placed over a hard coal fire, on the same spot before named he tried a succession of experiments during the hours he could spare from the patent leather business, until he finally succeeded in producing a piece of iron of beautiful smooth appearence, perfectly ductile, yet so hard that with a hammer no impression could be made upon it.

Thus, on the spot before mentioned, was first discovered in this country, the secret of the manufacture of two articles, which for practical utility, and every day use, are perhaps unsurpassed by any other now extant.—From a few large and common place articles first made from malleable iron, the number has now been increased to thousands, and at a cost of several hundred per cent. less than by any other known means. And to this city may be traced not only the incipiency, but we may say, the discovery, of these two important manufactures; and here too, they have been improved upon, and their manufacture extended until this city may now be considered the great emporium of their production.

[The above is from the Newark Advertiser, a paper which has a good taste for scientific and mechanical operations. There can be no questioning of the fact, "men make cities," and in the case of Mr. Boyden, we have an evidence of what one man has done to make one place (Newark) somewhat more prosperous than it otherwise would be. We know of no other place of equal size which has so great a variety of mechanical operations going on in it. Her carriages, her patent leather, &c., are famed far and wide.

The British manufacturers are offering encouragement to the cultivation of cotton in Jamaica. We suppose this is a ruse to try and lower the price of ours.

How to eat Pineapple.

Eating this delicious fruit as most people do, is only a vexation to the palate. This discrepancy between the odor and the flavor gives a constant sense of disappointment. If you would enjoy a pineapple, do it thus: Pair and slice it, throwing over the layers, as you place them in a preserve dish, a liberal sprinkling of the best sugar. Let it stand six or eight hours, and serve up with tea. You will find it most delicious—as harmless, and nearly as good as strawberries. Some folks would say better, but we don't allow anything to be better. Is is cheaper, however, and in this interval between strawberries and other berries, very convenient.

The Medical times says the largest fee on record is that received by Mons. Felix. He operated *for fistula in ano* upon Louis XIV.: his fee was £9,000.

The Pope has sent a splendid corona to Louis Napoleon. It is wrought with the lapis lazuli, precious stones and gold medalions.

LITERARY NOTICES.

CHAMBERS' ELEMENTS OF GEOLOGY.—A. S. Barnes & Co., 51 John street, have recently published this masterly compendious exhibition of the principles, objects and applications of the youngest, but not least robust, of modern sciences. It contains the geographical and physical aspects, organic remains and minerals of each formation; and the geology of each country on the globe (California especially,) determining the exact position of those mineral treasures on which the arts and manufactures so intimately depend.

HOLDEN'S DOLLAR MAGAZINE, Aug Number—Contains three illustrations and a brilliant series of original contributions. We notice a fine production from the pen of Rev. Henry Giles, entitled "Revolution and Re-action in Europe." The literary character of this number is superb.

DICTIONARY OF MECHANICS AND ENGINE WORK—Number 14 of this work, published by D. Appleton & Co., Edited by Oliver Byrne, contains articles on Files, Fire Engines, and Floating Docks, and a number of other very good things.

TYPOGRAPHICAL MISCELLANY—Nos. 5 and 6 of this work is just published by Joel Munsel, Albany; it contains a continued history of Printers and Printing in America.

We are indebted to Dr. C. C. Allen, Editor of the "New York Dental Recorder," for a complete file of this valuable publication. As its title indicates, it is devoted to the theory and practice of Dentistry. Its Editor, Dr. Allen, is without doubt one of the most able members of the profession, and one of the most skillful practical operators. We recommend the work to the attention of Dentists. Published monthly at $2 per annum, at No. 28 Warren street, N. Y.

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